7. CLAIMS

We claim:

1. A method of improving the quality, safety, and working lifetime of a cooking oil having a food residue therein from a cooking process, comprising the step of:

applying a non-reactive gas or non-reactive gas mixture to said cooking oil.

2. The method according to claim 1, further comprising the step of:

a) maintaining a temperature of said cooking oil in a range sufficient to cook a foodstuff.

3. The method according to claim 2, wherein the temperature is maintained in a range of at least about 300°F.

4. The method according to claim 1, wherein the non-reactive gas or non-reactive gas mixture is selected from the group consisting of nitrogen, argon, carbon dioxide, krypton, xenon, and neon.

5. The method according to claim 1, wherein the non-reactive gas or non-reactive gas mixture is applied to said cooking oil by sparging.

6. The method according to claim 1, wherein the non-reactive gas or non-reactive gas mixture is applied to said cooking oil through a membrane.

7. The method according to claim 1, wherein application of the non-reactive gas or non-reactive gas mixtures is substantially continuous.

8. The method according to claim 7, wherein said non-reactive gas or non-reactive gas mixture is applied to said cooking oil either at constant intervals or in a constant motion.

9. The method according to claim 1, wherein substances reactable with said cooking oil are displaced, thereby inhibiting formation of degradation byproducts.

10. The method according to claim 9, wherein the substances displaced comprise any one or more of oxygen, free radicals, dissolve organic compounds, undesirable volatile compounds, and moisture.

11. The method according to claim 9, wherein reactions resulting in formation of degradation byproducts within said cooking oil are minimized or inhibited.

12. The method according to claim 11, wherein the reactions comprise at least one of lipolysis, oxidation, and acrylamide formation

13. The method according to claim 5, wherein a flowrate of the non-reactive gas or non-reactive gas mixture applied is selected based upon an amount of foodstuff loaded in said cooking oil.

14. The method according to claim 5, further comprising the step of:

a) maintaining a temperature of the cooking oil in a range sufficient to cook a foodstuff, wherein the sparging of the cooking oil increases convection currents within the cooking oil such that less heat is required to cook the foodstuff in comparison to cooking the foodstuff in the cooking oil at the temperature without the sparging of the oil.

15. The method according to claim 1, wherein visible darkening of said cooking oil during cooking of a foodstuff is inhibited in comparison to when a foodstuff is cooked in said cooking oil at the temperature but without the application of the non-reactive gas or non-reactive gas mixture.

16. The method according to claim 2, wherein an increase in a photometric color index of said cooking oil during cooking of a foodstuff is inhibited in comparison to when a foodstuff is cooked in said cooking oil at the temperature but without the application of the non-reactive gas or non-reactive gas mixture.

17. The method according to claim 2, wherein an increase in a free fatty acid content of the cooking oil during cooking of a foodstuff is inhibited in comparison to when the foodstuff is cooked in said cooking oil at the temperature but without the application of the non-reactive gas or non-reactive gas mixture.

18. The method according to claim 2, wherein increases in a free fatty acid content and photometric color index of the cooking oil during cooking of a foodstuff is inhibited in

comparison to when a foodstuff is cooked in the cooking oil at the temperature but without the application of the non-reactive gas or non-reactive gas mixture.

19. The method according to claim 2, further comprising the steps of:

a) providing a foodstuff to be fried in said cooking oil;

b) removing at least some oxygen from said foodstuff; and

c) hermetically sealing said foodstuff to inhibit introduction of oxygen into said foodstuff, said sealing step occurring after said removing step.

20. The method according to claim 18, wherein at least some oxygen is removed by applying either a vacuum or a modified atmosphere gas stream to said foodstuff

21. The method according to claim 18, wherein the modified atmosphere is selected from the group consisting of nitrogen, carbon dioxide, argon, krypton, xenon, neon, and mixtures thereof.

22. The method according to claim 19, whereby introduction of oxygen into said cooking oil is inhibited in comparison to when said foodstuff is introduced into the cooking oil without removing at least some oxygen and hermetically sealing said foodstuff.

23. The method according to claim 1, wherein an oxygen concentration of the cooking oil is lowered by application of the non-reactive gas or non-reactive gas mixture, thereby inhibiting oxidation of the cooking oil.

24. The method according to claim 1, whereby production of free fatty acids in said cooking oil during a cooking process is inhibited by application of the non-reactive gas or non-reactive gas mixture.

25. The method according to claim 1, wherein a moisture content of the cooking oil is reduced by application of the non-reactive gas or non-reactive gas mixture, thereby inhibiting lipolysis of the cooking oil.